



TEKS Curriculum Framework for STAAR Alternate 2

Grade 7 Mathematics

STAAR Alternate 2 Mathematics Instructional Terms

The curriculum that will be assessed each year for STAAR Alternate 2 is determined by the essence statements that are selected for each administration. Teachers should refer to the Curriculum Framework documents for each selected essence statement to locate the prerequisite skills that are linked to that essence statement. Instruction should focus on the listed prerequisite skills. The teacher should determine what skills have been mastered and which need to be taught according to the developmental level of the student. The goal should be to assist the student in attaining the highest academic level the student is capable of within a given year. In addition to the prerequisite skills, there are instructional terms that students will need exposure to during instruction. This list does not encompass all the curriculum a student would be responsible for; it is a unique list of instructional terms developed by educator teams. Students need to become familiar with these terms as the student is developmentally able to comprehend the content. Students in higher grades need to also know the terms presented in earlier grades.

Grade 3 Mathematics

addition	attributes of geometric figures: sides, faces	chart	compare
divide	fraction: whole, half, separate, equal	graph: category, label, row, column	model
next to/after/before/between	number pair	number sentence	odd/even
order: least to greatest	pattern	penny, nickel, dime, quarter	plus
record/data	set/group	total	shapes: circle, rectangle, square, triangle

Grade 4 Mathematics

amount	equation	fractions: shaded parts of a whole, halves, fourths, fraction models	length
less than	minus	most/least	number line
pictograph			

Grade 5 Mathematics

deposit/withdrawal/balance	longer	numerator/denominator	saves/spends
unit			

Grade 6 Mathematics

area, area model, and formula for area of a rectangle (length x width)	bar graph	decimal point	equivalent fractions
expanded form	represent	square inch	

Grade 7 Mathematics

attributes of geometric figures: bases	cube	cylinder	fewer
sum/difference	x-axis	y-axis	

Grade 8 Mathematics

coordinate grid	line graph	location	multiplication
per	symmetry	tally marks/frequency table	

Algebra I

doubled	factor	operations	recycled
results	simplified/simplified form	square feet	

STAAR Reporting Category 1 – Probability and Numerical Representations: The student will demonstrate an understanding of how to represent probabilities and numbers.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
<p>(7.2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to</p> <p>(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers. Supporting Standard</p>	Models relationships between sets of numbers.

7.2 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Determining and Simplifying Numeric and Algebraic Expressions</i></p> <ul style="list-style-type: none"> • generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties • determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations • distinguish between expressions and equations verbally, numerically, and algebraically • generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization • simplify numerical expressions that do not involve exponents, including up to two levels of grouping • describe the meaning of parentheses and brackets in a numeric expression • represent the value of the digit in decimals through the thousandths using expanded notation and numerals • represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals • interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left • describe the mathematical relationships found in the base-10 place value system through the hundred thousands place • compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate • use standard, word, and expanded forms to represent numbers up to 1,200 • use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones • apply properties of operations to add and subtract two or three numbers • use objects, pictures, and expanded and standard forms to represent numbers up to 120 • use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones
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7.2**Prerequisite Skills/Links to TEKS Vertical Alignment**

- compose and decompose numbers up to 10 with objects and pictures

Recognizing Numbers and Counting

- classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers
- identify prime and composite numbers
- determine if a number is even or odd using divisibility rules
- determine whether a number up to 40 is even or odd using pairings of objects to represent the number
- generate a number that is greater than or less than a given whole number up to 1,200
- skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set
- recite numbers forward and backward from any given number between 1 and 120
- generate a number that is greater than or less than a given whole number up to 120
- recognize instantly the quantity of structured arrangements
- recite numbers up to at least 100 by ones and tens beginning with any given number
- generate a number that is one more than or one less than another number up to at least 20
- generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20
- recognize instantly the quantity of a small group of objects in organized and random arrangements
- count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order
- read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures
- count forward and backward to at least 20 with and without objects

Counting skills

- recognize one-digit numerals, 0-9
- verbally identify, without counting, the number of objects from 1 to 5
- use the verbal ordinal terms
- demonstrate understanding that when counting, the items can be chosen in any order
- count up to 10 items, and demonstrate that the last count indicates how many items were counted
- demonstrate that the order of the counting sequence is always the same, regardless of what is counted
- count 1-10 items, with one count per item
- use words to rote count from 1 to 30
- know that objects, or parts of an object, can be counted

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7.2	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p><i>Comparing, Ordering, and Rounding Numbers Using Place Value</i></p> <ul style="list-style-type: none"> • order a set of rational numbers arising from mathematical and real-world contexts • round decimals to tenths or hundredths • compare and order two decimals to thousandths and represent comparisons using the symbols $>$, $<$, or $=$ • compare and order decimals using concrete and visual models to the hundredths • round whole numbers to a given place value through the hundred thousands place • compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols $>$, $<$, or $=$ • compare and order whole numbers up to 100,000 and represent comparisons using the symbols $>$, $<$, or $=$ • use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200 • use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols ($>$, $<$, or $=$) • use relationships to determine the number that is 10 more and 10 less than a given number up to 120 • represent the comparison of two numbers to 100 using the symbols $>$, $<$, or $=$ • order whole numbers up to 120 using place value and open number lines • use place value to compare whole numbers up to 120 using comparative language • use comparative language to describe two numbers up to 20 presented as written numerals • compare sets of objects up to at least 20 in each set using comparative language

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 1 – Probability and Numerical Representations: The student will demonstrate an understanding of how to represent probabilities and numbers.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.6) Proportionality. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to</p> <p>(A) represent sample spaces for simple and compound events using lists and tree diagrams; Supporting Standard</p> <p>(C) make predictions and determine solutions using experimental data for simple and compound events; Supporting Standard</p> <p>(D) make predictions and determine solutions using theoretical probability for simple and compound events; Supporting Standard</p> <p>(E) find the probabilities of a simple event and its complement and describe the relationship between the two; Supporting Standard</p> <p>(H) solve problems using qualitative and quantitative predictions and comparisons from simple experiments; Readiness Standard</p> <p>(I) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces. Readiness Standard</p>	<p>Uses probability to solve problems involving proportional relationships.</p>

7.6 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Representing and Using Fractions, Decimals, Percents and Probability</i></p> <ul style="list-style-type: none"> • use equivalent fractions, decimals, and percents to show equal parts of the same whole • generate equivalent forms of fractions, decimals, and percents using real- world problems, including problems that involve money • represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers • represent ratios and percents with concrete models, fractions, and decimals • give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients • give examples of ratios as multiplicative comparisons of two quantities describing the same attribute • extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$ • compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$
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7.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • determine if two given fractions are equivalent using a variety of methods • decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations • represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$ • relate decimals to fractions that name tenths and hundredths • represent decimals, including tenths and hundredths, using concrete and visual models and money • compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models • represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines • solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8 • compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts $1/b$ • explain that the unit fraction $1/b$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number • represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines • identify examples and non-examples of halves, fourths, and eighths • use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole • explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger the part • partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words • identify examples and non-examples of halves and fourths • partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to</p> <p>(A) add, subtract, multiply, and divide rational numbers fluently; Supporting Standard</p> <p>(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers. Readiness Standard</p>	<p>Finds solutions to addition, subtraction, multiplication, or division problems.</p>

7.3 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Performing a Variety of Operations with Rational Numbers</i></p> <ul style="list-style-type: none"> multiply and divide positive rational numbers fluently add, subtract, multiply, and divide integers fluently represent integer operations with concrete models and connect the actions with the models to standardized algorithms recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division solve with fluency one-and two-step problems involving multiplication and division, including interpreting remainders round to the nearest 10, 100, or 1,000 or use compatible numbers to estimate solutions involving whole numbers <p><i>Adding and Subtracting Whole Numbers, Fractions, and Decimals</i></p> <ul style="list-style-type: none"> add and subtract positive rational numbers fluently represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations add and subtract whole numbers and decimals to the hundredths place using the standard algorithm evaluate the reasonableness of sums and differences of fractions using benchmark fractions 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1, referring to the same whole represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems solve with fluency one- step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms
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7.3**Prerequisite Skills/Links to TEKS Vertical Alignment**

- add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations
- recall basic facts to add and subtract within 20 with automaticity
- explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences
- apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10
- compose 10 with two or more addends with and without concrete objects
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as $2 + 4 = []$; $3 + [] = 7$; and $5 = [] - 3$
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99
- explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences
- solve word problems using objects and drawings to find sums up to 10 and differences within 10
- model the action of joining to represent addition and the action of separating to represent subtraction

Multiplying Whole Numbers, Fractions, and Decimals

- determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one
- represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models
- solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers
- represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models
- multiply with fluency a three-digit number by a two-digit number using the standard algorithm
- use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties
- represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15
- determine products of a number and 10 or 100 using properties of operations and place value understandings
- describe a multiplication expression as a comparison such as 3×24 represents 3 times as much as 24
- use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties

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7.3	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10 model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined <p><i>Dividing Whole Numbers, Fractions, and Decimals</i></p> <ul style="list-style-type: none"> divide whole numbers by unit fractions and unit fractions by whole numbers represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as $1/3 \div 7$ and $7 \div 1/3$ using objects and pictorial models, including area models solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts determine a quotient using the relationship between multiplication and division determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets <p>Adding to/taking away skills</p> <ul style="list-style-type: none"> use informal strategies to share or divide up to 10 items equally use concrete models or make a verbal word problem for subtracting 1–5 objects from a set use concrete models or make a verbal word problem for adding up to 5 objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to</p> <p>(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$; Readiness Standard</p> <p>(B) calculate unit rates from rates in mathematical and real-world problems; Supporting Standard</p> <p>(C) determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems; Supporting Standard</p> <p>(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems. Readiness Standard</p>	<p>Solves problems involving ratios, rates, or percents.</p>

7.4 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Representing and Solving Algebraic Relationships</i></p> <ul style="list-style-type: none"> determine if the given value(s) make(s) one- variable, one-step equations or inequalities true model and solve one- variable, one-step equations and inequalities that represent problems, including geometric concepts write corresponding real- world problems given one-variable, one-step equations or inequalities. represent solutions for one-variable, one-step equations and inequalities on number lines write one-variable, one-step equations and inequalities to represent constraints or conditions within problems represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$ write an equation that represents the relationship between independent and dependent quantities from a table identify independent and dependent quantities from tables and graphs solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships
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7.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> recognize the difference between additive and multiplicative numerical patterns given in a table or graph generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity represent real-world relationships using number pairs in a table and verbal descriptions determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations represent one- and two- step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> recognize and create patterns <p><i>Representing and Using Fractions, Decimals, Percents and Probability</i></p> <ul style="list-style-type: none"> use equivalent fractions, decimals, and percents to show equal parts of the same whole generate equivalent forms of fractions, decimals, and percents using real- world problems, including problems that involve money represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers represent ratios and percents with concrete models, fractions, and decimals give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients give examples of ratios as multiplicative comparisons of two quantities describing the same attribute extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$

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7.4	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$ determine if two given fractions are equivalent using a variety of methods decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$ relate decimals to fractions that name tenths and hundredths represent decimals, including tenths and hundredths, using concrete and visual models and money compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8 compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts $1/b$ explain that the unit fraction $1/b$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines identify examples and non-examples of halves, fourths, and eighths use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger the part partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words identify examples and non-examples of halves and fourths partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
<p>(7.7) Expressions, equations, and relationships. The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to</p> <p>(A) represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.</p> <p>Readiness Standard</p>	Shows linear relationships using a variety of forms.

7.7 Prerequisite Skills/Links to TEKS Vertical Alignment

Representing and Solving Algebraic Relationships

- determine if the given value(s) make(s) one- variable, one-step equations or inequalities true
- model and solve one- variable, one-step equations and inequalities that represent problems, including geometric concepts
- write corresponding real- world problems given one-variable, one-step equations or inequalities.
- represent solutions for one-variable, one-step equations and inequalities on number lines
- write one-variable, one-step equations and inequalities to represent constraints or conditions within problems
- represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$
- write an equation that represents the relationship between independent and dependent quantities from a table
- identify independent and dependent quantities from tables and graphs
- solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models
- represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions
- apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates
- compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships
- recognize the difference between additive and multiplicative numerical patterns given in a table or graph
- generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph
- represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity
- represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence
- represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity

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7.7	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • represent real-world relationships using number pairs in a table and verbal descriptions • determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product • represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations • represent one- and two- step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations • represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem • generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 • determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation • understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) • represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences <ul style="list-style-type: none"> • generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.10) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. The student is expected to</p> <p>(A) write one-variable, two-step equations and inequalities to represent constraints or conditions within problems; Supporting Standard</p> <p>(B) represent solutions for one-variable, two-step equations and inequalities on number lines; Supporting Standard</p> <p>(C) write a corresponding real-world problem given a one-variable, two-step equation or inequality. Supporting Standard</p>	<p>Uses equations or inequalities to model real-life situations.</p>

7.10 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Representing and Solving Algebraic Relationships</i></p> <ul style="list-style-type: none"> determine if the given value(s) make(s) one- variable, one-step equations or inequalities true model and solve one- variable, one-step equations and inequalities that represent problems, including geometric concepts write corresponding real- world problems given one-variable, one-step equations or inequalities represent solutions for one-variable, one-step equations and inequalities on number lines write one-variable, one-step equations and inequalities to represent constraints or conditions within problems represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$ write an equation that represents the relationship between independent and dependent quantities from a table identify independent and dependent quantities from tables and graphs solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships recognize the difference between additive and multiplicative numerical patterns given in a table or graph generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity
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7.10	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence • represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity • represent real-world relationships using number pairs in a table and verbal descriptions • determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product • represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations • represent one- and two- step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations • represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem • generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 • determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation • understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) • represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences • generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to</p> <p>(A) model and solve one-variable, two-step equations and inequalities; Readiness Standard</p> <p>(B) determine if the given value(s) make(s) one-variable, two-step equations and inequalities true. Supporting Standard</p>	<p>Uses equations or inequalities to model and solve problems.</p>

7.11 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Representing and Solving Algebraic Relationships</i></p> <ul style="list-style-type: none"> determine if the given value(s) make(s) one- variable, one-step equations or inequalities true model and solve one- variable, one-step equations and inequalities that represent problems, including geometric concepts write corresponding real- world problems given one-variable, one-step equations or inequalities. represent solutions for one-variable, one-step equations and inequalities on number lines write one-variable, one-step equations and inequalities to represent constraints or conditions within problems represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$ write an equation that represents the relationship between independent and dependent quantities from a table identify independent and dependent quantities from tables and graphs solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships recognize the difference between additive and multiplicative numerical patterns given in a table or graph generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence
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7.11	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity • represent real-world relationships using number pairs in a table and verbal descriptions • determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product • represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations • represent one- and two- step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations • represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem • generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 • determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation • understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) • represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences • generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
<p>(7.4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to</p> <p>(E) convert between measurement systems, including the use of proportions and the use of unit rates. Supporting Standard</p>	<p>Uses conversions between measurement systems to solve problems.</p>

7.4 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Measuring Length, Area, Volume, and Weight/Mass</i></p> <ul style="list-style-type: none"> determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes convert units within a measurement system, including the use of proportions and unit rates solve problems by calculating conversions within a measurement system, customary or metric determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible represent and solve problems related to perimeter and/ or area and related to volume use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$) solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table identify relative sizes of measurement units within the customary and metric systems solve problems related to perimeter and area of rectangles where dimensions are whole numbers use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$)
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7.4 Prerequisite Skills/Links to TEKS Vertical Alignment
<ul style="list-style-type: none"> determine liquid volume (capacity) or weight using appropriate units and tools determine when it is appropriate to use measurements of liquid volume (capacity) or weight determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit determine a solution to a problem involving length, including estimating lengths determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object find the length of objects using concrete models for standard units of length describe a length to the nearest whole unit using a number and a unit measure the same object/ distance with units of two different lengths and describe how and why the measurements differ illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement compare two objects with a common measurable attribute to see which object has more of/ less of the attribute and describe the difference give an example of a measurable attribute of a given object, including length, capacity, and weight <p><i>Measuring Time</i></p> <ul style="list-style-type: none"> determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m. tell time to the hour and half hour using analog and digital clocks <p>Measurement skills</p> <ul style="list-style-type: none"> informally recognize and compare weights of objects or people recognize how much can be placed within an object recognize and compare heights or lengths of people or objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.5) Proportionality. The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. The student is expected to</p> <p>(A) generalize the critical attributes of similarity, including ratios within and between similar shapes; Supporting Standard</p> <p>(B) describe π as the ratio of the circumference of a circle to its diameter; Supporting Standard</p> <p>(C) solve mathematical and real-world problems involving similar shape and scale drawings. Readiness Standard</p>	<p>Solves problems using proportional relationships for geometric figures.</p>

7.5 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Identifying and Using Attributes of Geometric Figures</i></p> <ul style="list-style-type: none"> • classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties • classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size • apply knowledge of right angles to identify acute, right, and obtuse triangles • identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure • identify points, lines, line segments, rays, angles, and perpendicular and parallel lines • use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories • classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language • decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts • compose two-dimensional shapes and three-dimensional solids with given properties or attributes • classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices • classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language • create two-dimensional shapes based on given attributes, including number of sides and vertices
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7.5	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible • identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language • identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons, and describe their attributes using formal geometric language • create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons • distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape • classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language • create two-dimensional shapes using a variety of materials and drawings • classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size • identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably • identify two-dimensional components of three-dimensional objects • identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world • identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles <p>Geometry and spatial sense skills</p> <ul style="list-style-type: none"> • create shapes • name common shapes

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.9) Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to</p> <p>(A) solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids; Readiness Standard</p> <p>(B) determine the circumference and area of circles; Readiness Standard</p> <p>(C) determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; Readiness Standard</p> <p>(D) solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net. Supporting Standard</p>	<p>Solves problems involving circumference, area, or volume of two- or three-dimensional geometric figures.</p>

7.9 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Measuring Length, Area, Volume, and Weight/Mass</i></p> <ul style="list-style-type: none"> determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes convert units within a measurement system, including the use of proportions and unit rates solve problems by calculating conversions within a measurement system, customary or metric determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible represent and solve problems related to perimeter and/ or area and related to volume
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7.9**Prerequisite Skills/Links to TEKS Vertical Alignment**

- use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$)
- solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate
- convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table
- identify relative sizes of measurement units within the customary and metric systems
- solve problems related to perimeter and area of rectangles where dimensions are whole numbers
- use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$)
- determine liquid volume (capacity) or weight using appropriate units and tools
- determine when it is appropriate to use measurements of liquid volume (capacity) or weight
- determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems
- decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape
- decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area
- determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row
- use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit
- determine a solution to a problem involving length, including estimating lengths
- determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes
- describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object
- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ
- illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other
- use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement
- compare two objects with a common measurable attribute to see which object has more of/ less of the attribute and describe the difference
- give an example of a measurable attribute of a given object, including length, capacity, and weight

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7.9	Prerequisite Skills/Links to TEKS Vertical Alignment
	<p data-bbox="191 220 457 245">Measurement skills</p> <ul data-bbox="226 256 1087 362" style="list-style-type: none"><li data-bbox="226 256 1087 289">• informally recognize and compare weights of objects or people<li data-bbox="226 289 1087 321">• recognize how much can be placed within an object<li data-bbox="226 321 1087 362">• recognize and compare heights or lengths of people or objects

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
(7.11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to (C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships. Supporting Standard	Identifies or solves equations using geometry concepts.

7.11 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Measuring Angles and Using Angle Relationships</i></p> <ul style="list-style-type: none"> • extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle • determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures • draw an angle with a given measure • determine the approximate measures of angles in degrees to the nearest whole number using a protractor • illustrate degrees as the units used to measure an angle, where $1/360$ of any circle is one degree and an angle that “cuts” $n/360$ out of any circle whose center is at the angle’s vertex has a measure of n degrees. Angle measures are limited to whole numbers • illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is “cut out” by the rays of the angle. Angle measures are limited to whole numbers <p><i>Measuring Length, Area, Volume, and Weight/Mass</i></p> <ul style="list-style-type: none"> • determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers • write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers • model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes • convert units within a measurement system, including the use of proportions and unit rates • solve problems by calculating conversions within a measurement system, customary or metric • determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base • recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible
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7.11**Prerequisite Skills/Links to TEKS Vertical Alignment**

- represent and solve problems related to perimeter and/ or area and related to volume
- use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$)
- solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate
- convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table
- identify relative sizes of measurement units within the customary and metric systems
- solve problems related to perimeter and area of rectangles where dimensions are whole numbers
- use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$)
- determine liquid volume (capacity) or weight using appropriate units and tools
- determine when it is appropriate to use measurements of liquid volume (capacity) or weight
- determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems
- decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape
- decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area
- determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row
- use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit
- determine a solution to a problem involving length, including estimating lengths
- determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes
- describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object
- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ
- illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other
- use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement
- compare two objects with a common measurable attribute to see which object has more of/ less of the attribute and describe the difference

Continued

7.11 Prerequisite Skills/Links to TEKS Vertical Alignment

- give an example of a measurable attribute of a given object, including length, capacity, and weight

Measurement skills

- informally recognize and compare weights of objects or people
- recognize how much can be placed within an object
- recognize and compare heights or lengths of people or objects

Representing and Solving Algebraic Relationships

- determine if the given value(s) make(s) one- variable, one-step equations or inequalities true
- model and solve one- variable, one-step equations and inequalities that represent problems, including geometric concepts
- write corresponding real- world problems given one-variable, one-step equations or inequalities
- represent solutions for one-variable, one-step equations and inequalities on number lines
- write one-variable, one-step equations and inequalities to represent constraints or conditions within problems
- represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$
- write an equation that represents the relationship between independent and dependent quantities from a table
- identify independent and dependent quantities from tables and graphs
- solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models
- represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions
- apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates
- compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships
- recognize the difference between additive and multiplicative numerical patterns given in a table or graph
- generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph
- represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity
- represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence
- represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity
- represent real-world relationships using number pairs in a table and verbal descriptions
- determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product
- represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations
- represent one- and two- step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations

Continued

7.11	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem • generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000 • determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation • understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s) • represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences • generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 <p>Classification and patterns skills</p> <ul style="list-style-type: none"> • recognize and create patterns

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation
<p>(7.6) Proportionality. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to</p> <p>(G) solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents. Readiness Standard</p>	<p>Solves problems using data represented in graphs.</p>

7.6 Prerequisite Skills/Links to TEKS Vertical Alignment

Using Data

- distinguish between situations that yield data with and without variability
- interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots
- solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot
- solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot
- solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals
- draw conclusions and make predictions from information in a graph
- write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one
- draw conclusions and generate and answer questions using information from picture and bar-type graphs
- draw conclusions from real-object and picture graphs

Collecting and Representing Data

- summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution
- summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution
- use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution
- represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots
- represent discrete paired data on a scatterplot

Continued

7.6

Prerequisite Skills/Links to TEKS Vertical Alignment

- represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots
- represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions
- summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals
- organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more
- explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category
- use data to create picture and bar-type graphs
- collect, sort, and organize data in up to three categories using models/ representations such as tally marks or T-charts
- use data to create real- object and picture graphs
- collect, sort, and organize data into two or three categories

Classification and patterns skills

- collect data and organize it in a graphic representation
- sort objects that are the same and different into groups and use language to describe how the groups are similar and different

Representing and Using Fractions, Decimals, Percents and Probability

- use equivalent fractions, decimals, and percents to show equal parts of the same whole
- generate equivalent forms of fractions, decimals, and percents using real- world problems, including problems that involve money
- represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers
- represent ratios and percents with concrete models, fractions, and decimals
- give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients
- give examples of ratios as multiplicative comparisons of two quantities describing the same attribute
- extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$
- compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$
- determine if two given fractions are equivalent using a variety of methods
- decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations
- represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$
- relate decimals to fractions that name tenths and hundredths
- represent decimals, including tenths and hundredths, using concrete and visual models and money
- compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models

Continued

7.6	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines • solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8 • compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts $1/b$ • explain that the unit fraction $1/b$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number • represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines • identify examples and non-examples of halves, fourths, and eighths • use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole • explain that the more fractional parts used to make a whole, the smaller the part: the fewer the fractional parts, the larger the part • partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words • identify examples and non-examples of halves and fourths • partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.12) Measurement and data. The student applies mathematical process standards to use statistical representations to analyze data. The student is expected to</p> <p>(A) compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads; Readiness Standard</p> <p>(B) use data from a random sample to make inferences about a population; Supporting Standard</p> <p>(C) compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations. Supporting Standard</p>	<p>Interprets data in graphs.</p>

7.12 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Using Data</i></p> <ul style="list-style-type: none"> distinguish between situations that yield data with and without variability interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals draw conclusions and make predictions from information in a graph write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one draw conclusions and generate and answer questions using information from picture and bar-type graphs draw conclusions from real-object and picture graphs <p><i>Collecting and Representing Data</i></p> <ul style="list-style-type: none"> summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution
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Continued

7.12	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots represent discrete paired data on a scatterplot represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category use data to create picture and bar-type graphs collect, sort, and organize data in up to three categories using models/ representations such as tally marks or T-charts use data to create real- object and picture graphs collect, sort, and organize data into two or three categories <p>Classification and patterns skills</p> <ul style="list-style-type: none"> collect data and organize it in a graphic representation sort objects that are the same and different into groups and use language to describe how the groups are similar and different

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

STAAR Reporting Category 4 – Data Analysis and Personal Financial Literacy: The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
<p>(7.13) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to</p> <p>(A) calculate the sales tax for a given purchase and calculate income tax for earned wages; Supporting Standard</p> <p>(B) identify the components of a personal budget, including income; planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses, and calculate what percentage each category comprises of the total budget; Supporting Standard</p> <p>(C) create and organize a financial assets and liabilities record and construct a net worth statement; Supporting Standard</p> <p>(D) use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby; Supporting Standard</p> <p>(E) calculate and compare simple interest and compound interest earnings; Supporting Standard</p> <p>(F) analyze and compare monetary incentives, including sales, rebates, and coupons. Supporting Standard</p>	<p>Recognizes ways to increase or decrease income and expenses.</p>

7.13 Prerequisite Skills/Links to TEKS Vertical Alignment

	<p><i>Understanding the Connections Among Income, Expenses, and Careers</i></p> <ul style="list-style-type: none"> compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study explain the difference between gross income and net income define income tax, payroll tax, sales tax, and property tax distinguish between fixed and variable expenses
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Continued

7.13**Prerequisite Skills/Links to TEKS Vertical Alignment**

- explain the connection between human capital/ labor and income
- identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs
- define money earned as income
- distinguish between wants and needs and identify income as a source to meet one's wants and needs
- list simple skills required for jobs
- differentiate between money received as income and money received as gifts
- identify ways to earn income

Managing Finances

- describe the value of credit reports to borrowers and to lenders
- describe the information in a credit report and how long it is retained
- explain why it is important to establish a positive credit history
- balance a check register that includes deposits, withdrawals, and transfers
- distinguish between debit cards and credit cards
- compare the features and costs of a checking account and a debit card offered by different local financial institutions
- balance a simple budget
- describe actions that might be taken to balance a budget when expenses exceed income
- develop a system for keeping and using financial records
- identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments
- describe the basic purpose of financial institutions, including keeping money safe, borrowing money, and lending
- describe how to allocate a weekly allowance among spending; saving, including for college; and sharing
- compare the advantages and disadvantages of various savings options
- calculate profit in a given situation
- identify decisions involving income, spending, saving, credit, and charitable giving
- list reasons to save and explain the benefit of a savings plan, including for college
- explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest
- identify the costs and benefits of planned and unplanned spending decisions)
- describe the relationship between the availability or scarcity of resources and how that impacts cost
- differentiate between producers and consumers and calculate the cost to produce a simple item
- identify examples of lending and use concepts of benefits and costs to evaluate lending decisions
- identify examples of borrowing and distinguish between responsible and irresponsible borrowing
- distinguish between a deposit and a withdrawal

Continued

7.13	Prerequisite Skills/Links to TEKS Vertical Alignment
	<ul style="list-style-type: none"> • explain that saving is an alternative to spending • calculate how money saved can accumulate into a larger amount over time • consider charitable giving • distinguish between spending and saving <p><i>Determining Values of Coins and Bills</i></p> <ul style="list-style-type: none"> • determine the value of a collection of coins and bills • use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins • determine the value of a collection of coins up to one dollar • use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/ or dimes • write a number with the cent symbol to describe the value of a coin • identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them • identify U.S. coins by name, including pennies, nickels, dimes, and quarters

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.

Mathematical Process Standards – Mathematical process standards will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations

(7.1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to

- (A) apply mathematics to problems arising in everyday life, society, and the workplace;
- (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
- (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
- (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

7.1 Prerequisite Skills/Links to TEKS Vertical Alignment

- display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- analyze mathematical relationships to connect and communicate mathematical ideas
- create and use representations to organize, record, and communicate mathematical ideas
- communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems
- use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
- apply mathematics to problems arising in everyday life, society, and the workplace

NOTE: Under each heading the prerequisite skills are arranged from the highest grade level to the lowest grade level.